Decision Making Inputs

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Data

Application Qualification Questions – Data Collection

1. What is the application/industry?
2. What hazard are you protecting against (i.e. gas leak (toxic or flammable), flame/fire)?
3. What is the purpose of the detection system (i.e. life safety, evacuation, shutdown, discharge mitigation/suppression systems, other)?
4. What flammable/toxic materials are present?
5. What materials need to be detected and at what levels (i.e. gas/chemical LFL, LEL)?
6. Where is/are the hazard(s) in the protected area? Are they obstructed by structures or weather? A
7. Where is the highest risk leak/ignition point?
8. How fast does the detector need to respond (i.e. seconds, milliseconds)?
9. What potential false alarm sources are present and where are they (i.e. welding, arcs, reflectance, other)?
10. What are the applicable codes, standards, specifications, certifications, & approvals? B
11. Who is the Authority Having Jurisdiction (AHJ)?
12. What is the environment of the area (i.e. hot, dry, humid, marine, cold, rainy, windy, sunny, overcast, reflective)?
13. What potential contaminants are present (i.e. that can impact detector performance by fouling or poisoning)?
14. What is the failure mode of the hazard you are monitoring?
15. What kind of system is monitoring the detectors (i.e. life safety, PCS, SCADA)?
16. How will the detectors be integrated into the monitoring system (i.e. loop, star, direct one-to-one)?
17. If the detection system is existing, does it have sufficient capacity (i.e. expansion, power)?
18. Are there any special requirements (i.e. redundancy)?
19. How sensitive is the application to false alarms?
20. What is the cost of a shutdown or lost product(ion)?

B

Gas Environment

Pressurized? — Yes → FlexSonic® Acoustic Gas Detector

No ↓

Toxic/Oxygen Depletion? — Yes → GT3000 Toxic Gas Detector, C7064E Toxic Gas Detector, PointWatch Eclipse® IR CO2 Gas Detector

No ↓

Hydrogen? — Yes → Catalytic Combustible Gas (CGS) Detector, FlexSonic® Acoustic Gas Detector

No ↓

Combustible? — Yes → **Combustible/Hydrocarbon** PointWatch Eclipse® Gas Detector, FlexSight™ Line-of-Sight Detector, FlexSonic® Acoustic Gas Detector, PointWatch™ IR Gas Detector, DuctWatch IR Gas Detector

End

Detector Recommendations

Flame Environment

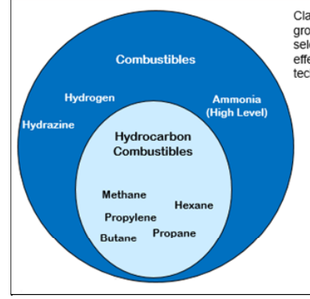
Detector Recommendations

	X3301 Multispectrum Infrared	X3302 Multispectrum Infrared	X5200 Ultraviolet/ Infrared	X9800 Infrared	X2200 Ultraviolet
Refinery	▲	▲	●	●	
Platform	▲		●	●	
Pipeline	▲		●	●	
Tank Farm	▲		●	●	
Loading Rack	▲		●	●	
Petrochemical	▲		●	●	●
FPSO	▲		●		
Marine	▲		●		
Turbine Enclosure	▲	▲	●		
Hydrogen		▲			●
Ammonia					●
Electrostatic Paint	▲			●	
Munitions			▲	●	●
Metal					▲
Printing			●	▲	●
Powder Coating			●	▲	
Transformer	▲		●		
Battery Room	●	▲			
Warehousing	▲		●		
Aerosol Fill			▲	●	●
Hangar	▲		●		

▲ *Highly Recommended*
● *Recommended*

End

Understanding Gas Groups



Classifying gasses by group is critical to selecting the most effective gas sensing technology

Optical Flame Detection Technologies

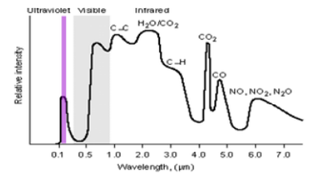
UV Detection

IR Detection

UVIR Detection

Multi-IR Detection

Multi-IR H_2 Detection



Graph: spectral output from a typical gasoline fire

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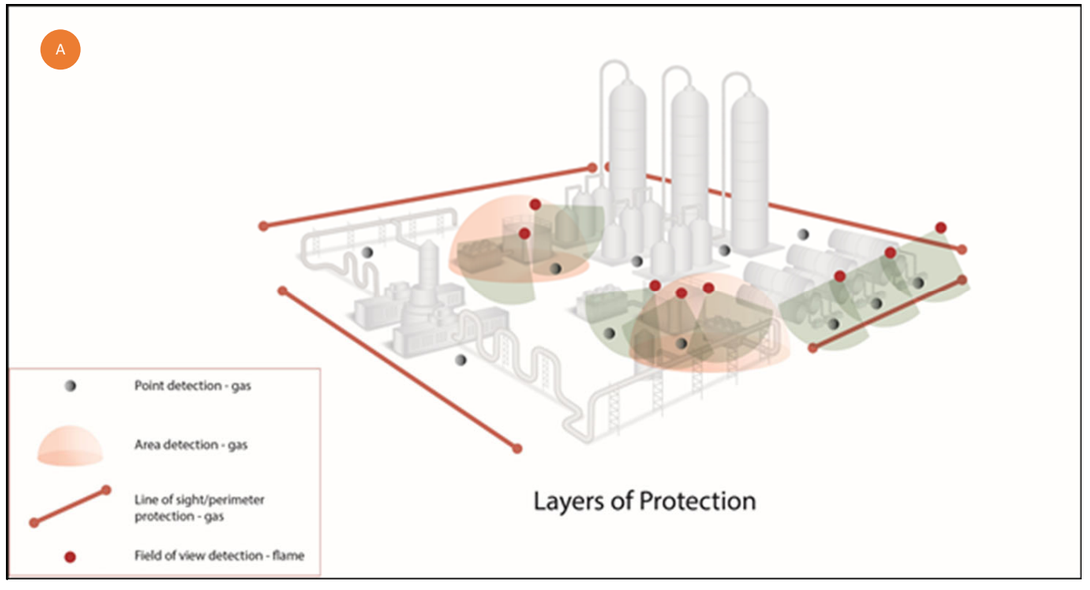

Layers of Protection

Region	Approval Agency B
Americas	FM, CSA, NFPA, UL, ULC
Europe	HSE, ATEX, EN, CE, IECEx, VdS, BRE, CNPP, CPD, LPCP, AFNOR
Middle East/Asia Pacific	FM, ATEX, IECEx
Brazil	INMETRO
India	CCOE
China	Nepsi, CCCF
Specialty	SIL
Marine	DNV, USCG, ABS, Lloyds